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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,809	01/09/2002	Bruce Michael Cassidy	IBMS.040US01 (0543)	5058

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Chattanooga, TN 37402

EXAMINER

VU, TRISHA U

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,809

Applicant(s)

CASSIDY, BRUCE MICHAEL

Examiner

Trisha U. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-63 and 65-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 56-59, 65-68 is/are rejected.
- 7) ☐ Claim(s) 60-63 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 56-63 and 65-68 are presented for examination.

Claim Objections

2. Claims 66 and 67 depend on the *canceled claim 64*, thus they also need to be canceled.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 56-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Micalizzi, Jr. et al. (6,564,271) (hereinafter Micalizzi).

As to claim 56, Micalizzi teaches a system providing peripheral component device interconnection, comprising: a peripheral device processor (in I/O device 132, Fig. 1) for controlling operation of the peripheral device (col. 3 lines 54-57, e.g. when the I/O device is printer, there must be a processor in the printer to at least process the received printing command); and a host messaging unit (host adapter 116), coupled to the peripheral device processor (via bus 130), but separate from the peripheral device processor (Figs. 1-3), the host messaging unit retrieving host commands from a host memory (e.g. retrieving command blocks IOBCs from request queue 110 in host memory 106) of a host (host 102) separated from the host messaging unit without the use of the

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processor of a peripheral device (without the use of the processor in the printer), validating the retrieved host commands (checking for error) (col. 7 lines 9-20) and signaling to the host memory a successful asynchronous transfer of the host commands from host memory to the processor of the peripheral device (host adapter writes I/O status to response queue 112 to inform the host that an I/O request is complete and whether or not the I/O request was successful, col. 8 lines 2-23).

As to claim 57, Micalizzi further teaches the host messaging unit (host adapter 116) retrieves host commands from a host memory of a host without adding process loading to a host processor of the host (this is taken care of by the adapter, the processor of the printer is not involved in the retrieving host commands from the host, col. 7 lines 35-48).

As to claim 58, Micalizzi further teaches the host messaging unit (host adapter 118) provides signaling between the peripheral device (printer 132) and the discrete host (host 102) asynchronous to operation of the host and the peripheral device (col. 3 lines 58-67).

As to claim 59, Micalizzi further teaches the host messaging unit (host adapter 116) is disposed external to the peripheral device (I/O devices 132) (Fig. 1) and provides signaling between a plurality of processors of peripheral devices (e.g. processors of I/O devices 132-134, such as printers, scanner, etc...) and the host (Fig. 1), the operation of the host messaging unit being asynchronous to operation of the discrete host and the peripheral devices (col. 3 lines 58-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Micalizzi, Jr. et al. (6,564,271) (hereinafter Micalizzi) in view of Nelson et al. (5,574,863) (hereinafter Nelson).

As to claim 65, Micalizzi teaches a method of servicing a peripheral component interconnect device, comprising: providing a host messaging unit (adapter 116) operatively disposed between a host (host 102) separated from the host messaging unit having a host processor (processor 104) and a processor of a peripheral device (processor of printer device 132, col. 3 lines 54-57) for providing a signal interface that operates asynchronously with respect to the operation of the host processor and the processor of the peripheral device (Figs. 1-3); polling, by the host messaging that the host processor has loaded a host command into host memory coupled to the host processor (col. 6 lines 48-55); retrieving, using the host messaging unit, the host commands from the host memory without the use of the processor of the peripheral device (this is taken care of by the adapter, the processor of the printer is not involved in the retrieving host commands from the host, col. 7 lines 35-48); validating the retrieved host commands at the host messaging unit (checking for error) (col. 7 lines 9-20); and clearing the host memory by

the host messaging unit to allow the host to infer that the host command has been read by the host messaging unit (inbound logic 202 de-queues the request queue 110 and controls the out-pointer 404 to signal the host that the command has been read) (Fig. 3 and col. 5 lines 60-67); and providing the host command to the processor of the peripheral device for processing by the peripheral device processor (col. 7 lines 35-48). Micalizzi teaches polling by the host messaging unit to detect when the host processor has loaded a new host command into host memory coupled to the host processor (col. 6 lines 48-56 as explained above). However, Micalizzi does not explicitly disclose signaling the host messaging unit when there is a new message loaded in the memory. Nelson teaches in addition to polling, using interrupt signaling to notify when there is new message in the mailbox (after a requesting agent writes message into the mailbox, generating an interrupt signal to notify the reply agent that a message exists in the mailbox for the reply agent to read) (col. 4 lines 43-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the interrupt signaling as taught by Nelson in the system of Micalizzi to provide additional robustness and reliability of communication between agents in the case of failure of one method or the other (col. 4 line 66 to col. 5 line 2).

As to claim 66, Micalizzi further teaches retrieving, using the host messaging unit, the host commands from host memory without adding process loading to the host processor of the host (col. 3 lines 58-67).

As to claim 67, Micalizzi does not explicitly disclose providing a clock to control the initiation of the retrieval of the host command from the host memory at

predetermined intervals. Nelson further teaches providing a clock to control the initiation of the retrieval of new message from the host memory at predetermined intervals (lines 58-66 and col. 7 lines 51-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement providing a clock to control the retrieval of new message at predetermined intervals as taught by Nelson in the system of Micalizzi to enhanced reliability to the communication process and system.

As to claim 68, Micalizzi teaches an article of manufacture comprising: a program storage medium readable by a computer, the medium tangibly embodying one or more programs of instructions executable by the computer to perform operations for reducing bus transfer overhead between a host processor and a peripheral component interconnect device processor, the operations comprising: providing a host messaging unit (adapter 116) operatively disposed between a host (host 102) separated from the host messaging unit having a host processor (processor 104) and a processor of a peripheral device (processor of printer device 132, col. 3 lines 54-57) for providing a signal interface that operates asynchronously with respect to the operation of the host processor and the processor of the peripheral device (Figs. 1-3); polling, by the host messaging that the host processor has loaded a host command into host memory coupled to the host processor (col. 6 lines 48-55); retrieving, using the host messaging unit, the host commands from the host memory without the use of the processor of the peripheral device (this is taken care of by the adapter, the processor of the printer is not involved in the retrieving host commands from the host, col. 7 lines 35-48); validating the retrieved host commands at the host messaging unit (checking for error) (col. 7 lines 9-20); and clearing the host

memory by the host messaging unit to allow the host to infer that the host command has been read by the host messaging unit (inbound logic 202 de-queues the request queue 110 and controls the out-pointer 404 to signal the host that the command has been read) (Fig. 3 and col. 5 lines 60-67); and providing the host command to the processor of the peripheral device for processing by the peripheral device processor (col. 7 lines 35-48). Micalizzi teaches polling by the host messaging unit to detect when the host processor has loaded a new host command into host memory coupled to the host processor (col. 6 lines 48-56 as explained above). However, Micalizzi does not explicitly disclose signaling the host messaging unit when there is a new message loaded in the memory. Nelson teaches in addition to polling, using interrupt signaling to notify when there is new message in the mailbox (after a requesting agent writes message into the mailbox, generating an interrupt signal to notify the reply agent that a message exists in the mailbox for the reply agent to read) (col. 4 lines 43-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the interrupt signaling as taught by Nelson in the system of Micalizzi to provide additional robustness and reliability of communication between agents in the case of failure of one method or the other (col. 4 line 66 to col. 5 line 2).

Allowable Subject Matter

5. Claims 60-63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The claims include the limitation of a bus master command engine, coupled to the validator, read controller and bus, the bus master command engine initiating the command retrieval from the host memory when the bus master command engine receives a signal from the discrete host indicating host commands are available in the host memory, which is not shown by the prior art of record, in the combination as disclosed and claimed.

Response to Arguments

6. Applicant's arguments filed 01-11-06 with respect to amended independent claims 56, 65 and 68 have been considered but are moot in view of different interpretation of Micalizzi (US Patent 6,564,271) reference (note the detailed explanation in the rejection above).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trisha Vu whose telephone number is 571-272-3643. The examiner can normally be reached on Mon-Thur and alternate Fri 8:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trisha Vu

Trisha Vu
Examiner
Art Unit 2112

uv

[Signature]
REHANA PERVEEN
SUPERVISORY PATENT EXAMINER
4/19/06